POSTDOCTORAL POSITION IN COMPARATIVE IMMUNOLOGY

Laboratory of Dr. Leon Grayfer

Dept. of Biological Sciences, George Washington University, Washington, DC, USA

Background information: Amphibians possess considerably less efficient adaptive immune responses and must thus rely more heavily on their innate immune defenses. It is noteworthy that macrophages are integral to all vertebrate innate immune responses, and yet are often also infiltrated by invading infectious agents, resulting in pathogen persistence and dissemination. This kind of host immune cell-pathogen relationship is exemplified by the infection of amphibians with the Frog Virus 3 ranavirus, wherein distinct lineages of amphibian (*Xenopus laevis*) macrophages confer susceptibility and resistance to this microbe. In fact, the success of any given antimicrobial response often hinges on pertinent macrophage development and functional polarization. Accordingly, the Grayfer lab is interested in elucidating the specific immunological strategies by which cold-blooded vertebrate species such as amphibians, coordinate their macrophage ontogeny and antimicrobial defenses.

Rationale and objectives: Our work has demonstrated that different *X. laevis* growth and activation factors elicit macrophages with strikingly distinct antimicrobial capacities. Investigation into how these cells develop and are immunologically regulated will provide new insights into both the sources of vertebrate macrophage functional heterogeneity, as well as the facets of amphibian susceptibility and resistance to emerging pathogens such as Frog Virus 3.

Presently, the scope of our research is focused on delineating the molecular mechanisms governing *X. laevis* macrophage development; the identification and characterization of growth and activation factors that contribute to these processes and to more precisely defining the roles of different frog macrophage lineages during antimicrobial responses against infectious agents such as Frog Virus 3.

Profile of candidates: Applicants with a doctoral degree and preferably possessing experience working with comparative research animal model(s) are encouraged to apply. The successful applicant should be highly motivated, possess excellent research, communication and writing skills, and have a record of high quality publications in peer-reviewed journals. Salary is commensurate with experience.

How to apply: Interested candidates are invited to submit their application, including a cover letter, a full curriculum vitae, and a brief description of prior research experience by e-mail to Dr. Leon Grayfer. Please also arrange to have three letters of scientific reference forwarded to Dr. Grayfer.

Email: leon_grayrfer@gwu.edu